REMARKS

The final Office Action mailed November 30, 2004, has been reviewed and carefully considered. Claims 70-147 are pending in the application. Claims 70-147 were rejected.

In paragraph three on page two of the Office Action, claims 70-88, 105-127, and 145-147 were rejected under § 103(a) over Haaland (U.S. Patent Pub. No. 2002/0059047) in view of Obremski (U.S. Patent No. 5,498,875).

In paragraph four on page four of the Office Action, claims 89-104, and 128-144 were rejected under § 103(a) over Haaland, in view of Obremski and in further view of Ito (U.S. Patent No. 6,393,368).

Applicants respectfully traverse the § 103(a) rejections. Applicants submit that the requirements for a §103(a) rejection are not present and a prima facie rejection fails because the Office Action fails to cite a reference or references that teach, disclose or suggest all the claim limitations of Applicants' application.

Applicants' application focuses on a spectral processing method that compensates for the effects of drift of data along an independent variable axis. Applicants' method requires "transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along an independent variable axis."

Haaland merely discloses a method for adjusting the calibration of a spectrometer. Haaland calibrates the spectrometer by adding a spectral shape associated with a source of variation to a prediction model. The prediction model is used to form a hybrid calibration model. Thus, Haaland does not teach "transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along an independent variable axis."

Haaland discloses a method to allow for "known spectral shapes to be substituted for chemical composition during the CLS analysis. The spectral components not known during calibration can still be included in the CLS prediction model if their shapes are known." Paragraph 0029. Spectral components, according to Halland at paragraph 0027, includes: "either chemical components (molecular or elemental) *or other sources of spectral change.*" Spectral shapes, derived from spectral components, are dependent on the spectrometer or

sample. Therefore, Haaland does not disclose, teach or suggest "transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along an independent variable axis."

Furthermore, the Office Action erroneously asserts that Haaland discloses "A method of multivariate spectral analysis of repeat (sequential) sample spectra, where the repeat spectral shapes are transformed into a matrix of row vectors from which time dependent (an independent variable, as recited in claims 70, 73, and 145) spectrometer drift spectral data are subtracted, resulting in a drift compensated matrix; i.e., compensated for the effects of drift as related to the independent variable time, as recited in claim 70. See paragraph [0026]."

Haaland does not discuss time in paragraph 0026. Haaland merely mention time in paragraph 0031 where Haaland states, "required spectral shapes can be determined through the use of repeat samples. The best single repeat sample is generally the sample representing the center of the calibration space. In the case of a single repeat sample, the sample spectrum of the repeat sample can be obtained during the period of the calibration. This repeat sample can then represent all the environmental changes occurring during the calibration as reflected by the mid-level sample. It is known that the drift of the spectrometer looks different on different samples. Therefore, a sample that represents the calibration data is the preferred sample to use. If the sample is invariant with time, then any change in the sample spectrum will represent spectral shapes that generally have not been explicitly included in the CLS calibration."

Haaland uses a repeat sample taken during calibration in order to represent the center of the calibration space, thereby removing time (an asserted independent variable) as a factor. Haaland does not use time as a factor in obtaining spectra, therefore no time axis is present. Thus, Haaland's spectral shape varies only in the y (or dependent variable) axis. Because Haaland does not suggest "transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along an independent variable axis," Haaland cannot account and adjust for spectra data drift of data along the independent variable axis, which may, for example, result from charging of underlying layers of the structure being analyzed via the spectrometer.

In addition, because Haaland does not suggest transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along the independent variable axis, Haaland cannot suggest performing a factor analysis on the array of row vectors (i.e., drift-compensated row vectors) to provide a set of principal factors compensated for effects of drift of data along the independent variable axis. Moreover, because Haaland does not suggest transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along the independent variable axis and does not suggest performing a factor analysis on the array of row vectors (i.e., drift-compensated row vectors) to provide a set of principal factors compensated for effects of drift of data along the independent variable axis, Haaland cannot suggest generating compositional profiles compensated for effects of drift of data along the independent variable axis from the set of principal factors.

Obremski fails to remedy the deficiencies of Haaland. Obremski merely suggest using target factor analysis. Nowhere in Obremski is the subject of transforming sequential spectra to compensate for effects of drift of data along the independent variable axis ever mentioned.

Thus, Obremski also does not teach "transforming sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along the independent variable axis."

Ito fails to remedy the deficiencies of Haaland and Obremski. Ito merely suggests using waveform factor analysis along a time axis at col. 4, lines 58-65. Ito does no disclose, teach or suggest "transforming a plurality of sequential spectra obtained from a spectrometer to provide an array of row vectors compensated for effects of drift of data along an independent variable axis," from Applicants' application.

Applicants respectfully submit that the Section 103(a) rejection based on Haaland in view of Obremski, and the rejection based on Haaland in view of Obremski in further view of Ito is improper because combination of the references do not teach, disclose or suggest at least the first element of Applicants' claim and therefore should be withdrawn.

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Moreover, for the reason stated above, Obremski cannot teach performing a factor analysis on the array of row vectors (i.e., drift-compensated row vectors) to provide a set of principal factors compensated for effects of drift of data along the independent variable axis or generating compositional profiles compensated for effects of drift of data along the independent variable axis from the set of principal factors.

Dependent claims 71-88, 90-104, 106-127, 129-144 and 146 are also patentable over the references, because they incorporate all of the limitations of the corresponding independent claims. Further, dependent claims 71-88, 90-104, 106-127, 129-144 and 146 recite additional novel elements and limitations. Applicants reserve the right to argue independently the patentability of these additional novel aspects. Therefore, Applicants respectfully submit that dependent claims 71-88, 90-104, 106-127, 129-144 and 146 are patentable over the cited patent.
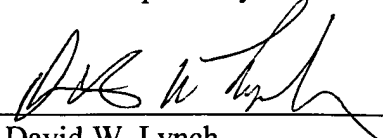
Moreover, Applicants respectfully traverse the Section 103(a) rejection based on Haaland in view of Obremski and in further view of Ito because the Office Action fails to present any evidence that one skilled in the art would be motivated to combine the cited Haaland, Obremski and Ito references. A Section 103(a) rejection can only be established by combining cited references to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *See*, MPEP § 2143.01. The Office Action alleges various teachings in the Haaland, Obremski and Ito references without citing any evidence in the Haaland, Obremski or Ito reference that one skilled in the art would combine the alleged teachings to achieve Applicant's claimed invention. Absent any support, the Office Action expresses the conclusory opinion that the references are combinable.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested. Please charge/credit Deposit Account No. 50-0996 (IBMS.009US01) for any deficiencies/overpayments.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicants, David W. Lynch, at 651-686-6633 Ext. 116.

Respectfully submitted,

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